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depositories for convenience of examination. Some return is made by the government but just what my informant neglected to state.

I was much interested in Mr. Non Nemo's account of the adjustment of a conflict between local bureaus of research (somewhat like our state geological surveys but with a wider scope), and the official scientific commission of Utopia. This subject, however, we hope to fully elucidate in our contemplated memoir and will simply remark that the adjustment charged the local bureaus with the detailed examinations and collection of material, and imposed the duty of turning over a certain part of the facts and material to the central organization, which reduced the whole to systematic form, and included in its report an epitome of the more detailed publications of the local bureaus.

Several of the provisions described above seem to the writer adapted to the work of the Association for Advancement of Science and later to the International Congress of Sciences and, I trust, we may arrive at a satisfactory system without the long period of experiment and bitterness passed through by science in Utopia.

DESCRIPTION OF A NEW SPECIES OF FIELD-MOUSE (*ARVICOLA PALLIDUS*) FROM DAKOTA.

BY DR. C. HART MERRIAM.

AMONG some small mammals collected during the past season at Fort Buford, in Northwestern Dakota, by Mr. Vernon Bailey, are four well-prepared skins with skulls of a very light-colored *Arvicola*, a careful study of which has led to some important and unexpected results. Concerning their habits, Mr. Bailey contributes the following: "The *pallid Arvicolas* seem to be common at Fort Buford. They show a decided preference for the north side of steep hills. I have not found them on the south, southeast, or southwest sides. The only reason I can suggest for this distribution is that the twilight (their favorite hour) is longer

on the north side. The hills where I have found them are all steepest on the north side, which may have some effect, though there seems to be no difference in the vegetation on different sides. Like other *Arvicolæ*, they have many holes, and probably live in families or colonies, although I have not caught more than one at a group of holes; but from the difficulty in catching them this does not signify anything (have caught only four).

"Where there is grass or weeds, their holes are connected by beaten paths in the same manner as those of *Arvicola austerus*, but in many places they are in bare clay. Their food seems to consist largely of the flowers of certain plants, judging from the remains of flowers scattered around the holes, and from the contents of their stomachs and excrement. When these plants grow near, there are usually pieces of stems and blossoms of *Liatris graminifolia* and *Artemisia frigida* lying about, but many other plants and grasses seem to be eaten. They feed largely on the seeds of *Eurotia lanata*. I found a place near their holes where something had dug down to a partly-eaten bulb of *Liatris graminifolia*. Probably these bulbs form a part of their diet, as is the case with *Arvicola austerus*. I placed corn, oats, cactus seeds, and seeds of weeds around their holes, but they remained untouched. The same was true of bread and cheese, and fried cake was seldom eaten. They seem suspicious of traps, and evidently leave their holes when traps are set near them. I have caught several grasshopper mice (*Onychomys leucogaster*) and Western white-footed mice (*Hesperomys leucopus sonoriensis*) at their holes, and think these species either drive out the *Arvicolæ* or else inhabit the old holes." The exact locality where these specimens were obtained, writes Mr. Bailey, "is not actually in the extreme 'bad lands,' but near the edge, where the land is about 'half bad.' From the fact that they live entirely in the hills and usually near the tops, where it is very dry, it might be inferred that their true home is in the 'bad lands.'"

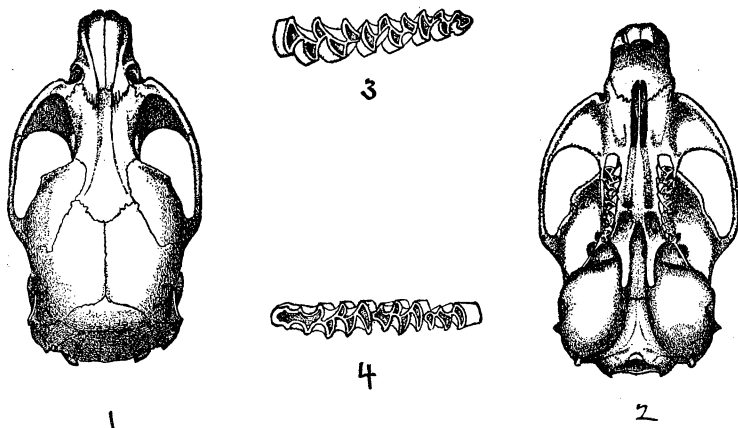
In comparing these mice with the other known North American species of *Arvicola*, two striking external differences are observed, namely, (1) *extreme paleness in coloration*; (2) *extreme shortness of tail*. The color is paler even than that of the Muskeget Island mouse (*Arvicola breweri*), and the tail is shorter than that of any other species, not excepting *A. pinetorum*, in this respect agreeing closely with *Synaptomys cooperi*. The ears are unusually

prominent, but this peculiarity probably is subgeneric. An examination of the skulls and teeth at once shows the animal to belong to the subgenus *Chilotus* of Baird, to which but one species (*Arvicola oregonus*, from the Pacific coast region) has been heretofore definitely assigned. The range of the subgenus is thus extended more than a thousand miles to the eastward. The present species is nearly as large as *Arvicola riparius*, and consequently considerable larger than *A. oregonus*. Of the four specimens at hand, two are males and two females, all fully adult. The females bear evidence of recent nursing. The species may be easily distinguished by the following diagnosis:

ARVICOLA (CHILOTUS) PALLIDUS sp. nov.

Type no. $\frac{3852}{4431}$, ♀ adult, Merriam Collection. Fort Buford, Dakota, September 10, 1887. Vernon Bailey.

General characters.—Size medium, nearly equalling that of *Arvicola riparius* (average total length of four specimens 126.25 mm.). Tail very short (average length in four specimens 23.75



4431 male *Arvicola (Chilotus) pallidus* Merriam. From Ft. Buford, Dakota (Type). 1 and 2, skull, double natural size; 3, upper molar series, $\times 5$; 4, lower molar series, $\times 5$.

mm. from actual base; apparent length only about 18 mm.) with a long terminal pencil. Ears medium; thick; well haired, superior border inflexed, giving them a prominence not seen in flat ears of the same size; antitragus medium (smaller than in

A. oregonus), its anterior border becoming continuous with the anterior base of the auricle, thus forming a low rim in front of the meatus as in *A. oregonus* and *Synaptomys cooperi*. Fur everywhere long, full, and soft.

Color.—Upper parts everywhere uniform pale buffy-gray, slightly grizzled by the admixture of black-tipped hairs; under parts white, the plumbeous color of the base showing through in places on the belly; tail more or less obscurely bicolor.

Measurements of four specimens from Fort Buford, Dakota, all adults. Measurements in Millimetres.

No.	Sex.	Measured in the flesh.		Measured from the dry skin.			Date.
		Total length.	Tail to end of vertebræ.	Tail pencil.	Hind foot.	Height of ear from crown.	
$\frac{3851}{4130}$	♂	124	25	6.5	18.25	5.5	Sept. 8, 1887
$\frac{3852}{4131}$	♀	121	20	7.5		6.	" 10, "
$\frac{3853}{4132}$	♂	133	25	8.5	18.7	5.	" 19, "
$\frac{3854}{4133}$	♀	127	25	7.5	18.	5.5	" 20, "

DR. N. O. HOLST'S STUDIES IN GLACIAL GEOLOGY.

BY DR. JOSUA LINDAHL.

(Continued from July No.)

D. The moraines.—There is a marked difference between the topographical conditions of Sweden and Greenland. The latter country is all mountains. Large flat lands are nowhere to be seen, the mountains rising at once to a great altitude.¹ As a rule one

¹A. E. Nordenskiöld: Studier och forskningar, föranledda af mina resor i höga norden, Stockholm, 1883. Pp. 63-124.